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ABSTRACT

A report is made on a teacher preparation evaluation program that consisted of a systematic follow-up of teachers both while in the undergraduate programs and after they entered the profession. The data provided covers a period of more than seven years. Changes in teacher behavior as experience is gained are examined, and additional findings about the characteristics of those who stay in the field and those who leave teaching are presented. Implications for decision makers who are involved in teacher education program development are discussed. Data from this research is appended in tabular form. (JD)

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Critical Findings from the Teacher Preparation Evaluation
Program: Teacher Entry, Retention, and Change

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Introduction

If the standards for accreditation of teacher education programs are examined, it becomes evident that the organized professional groups responsible for adopting those standards consider the systematic evaluation of teacher education important, even essential, to the improvement of teacher education efforts and ultimately to public education in this country. NCATE and NASDTEC, the two organizations most concerned with specific accreditation of teacher education programs, have standards and recommendations which emphasize evaluation of programs through the systematic follow-up of teachers both while in the undergraduate programs and after they enter the profession.* Yet there exist very few examples of evaluation programs that attempt systematic, continuous evaluation of teacher education efforts. Pegues (1978) after conducting a national survey of teacher education institutions concluded, "There is only moderate contemporary involvement in systematic follow-up evaluative practices by teacher education programs There is a minimal level of evaluative sophistication in the design and the implementation of contemporary evaluation schema."

This report is a brief discussion of one evaluation program that has made a serious attempt to meet the intent and spirit of the evaluation charge issued through Standard 6.1 of the NCATE standards (1977) and Standard 3.1 of the NASDTEC recommendations (1976). The Western Kentucky University Teacher Preparation Evaluation Program (TPEP) represents the eight year commitment of an institution to the evaluation of teacher education graduates and has provided a rare set of longitudinal data not often found in educational research literature. Thus, it is important to consider the source of the reported findings and nature of the program that produced them.

*NCATE - National Council for Accreditation of Teacher Education

NASDTEC - National Association of State Directors of Teacher Education and Certification

Background

In 1972 J. T. Sandefur (1972) authored a monograph entitled, An Illustrated Model for the Evaluation of Teacher Education Graduates that served as the basis for the Teacher Preparation Evaluation Program (TPEP). Sandefur's model was founded on research drawn from teacher effectiveness studies and advocated a systematic, longitudinal approach to the evaluation of teacher education graduates. While certain specific instruments and procedures for data collection were suggested by Sandefur, the model stressed three general concepts which were different from the more common practices of follow-up mailed questionnaires. These concepts were 1) that data be objective and quantifiable, 2) that data be collected from multiple sources to include direct classroom observation by trained observers, and 3) that graduates be followed for a minimum of five years with data collected during specified points during that period.

In the spring of 1972, TPEP was initiated with data collected from a sample of 40 student teachers. Since that modest beginning, data will have been collected from 307 student teachers, 170 first year teachers, 76 third year teachers, and 38 fifth year teachers by the end of the 1979 spring semester.

Procedures

TPEP is organized around a Cycle-Phase arrangement in which a new sample is selected each year to begin a new Cycle. Each Cycle has four Phases that correspond to data collection periods. Phase 1 represents data collection during student teaching, with Phases 2, 3, and 4 corresponding to data collection during the first, third, and fifth years of teaching experience, respectively. Figure 1 displays this Cycle-Phase arrangement. Presently data are being collected from Cycle III Phase 4, Cycle V Phase 3, Cycle VII Phase 2 and Cycle VIII Phase 1.

CYCLE I	Phase 1	Phase 2		Phase 3		Phase 4		
CYCLE II		Phase 1	Phase 2		Phase 3		Phase 4	
CYCLE III			Phase 1	Phase 2		Phase 3		Phase 4
CYCLE IV				Phase 1	Phase 2		Phase 3	
CYCLE V					Phase 1	Phase 2		Phase 3
CYCLE VI						Phase 1	Phase 2	
CYCLE VII							Phase 1	Phase 2
CYCLE VIII								Phase 1
	1972	1973	1974	1975	1976	1977	1978	1979

Figure 1 - Cycle and Phase Arrangement

Data have been collected from multiple sources to include 1) direct classroom observation by trained observers, 2) peer and supervisor ratings, 3) student evaluations, 4) university records, and 5) participant self reports. Instruments were chosen that had demonstrated research merit, that could be administered with reasonable ease, and that contributed to the overall objectives of the program. The longitudinal nature of the project has prohibited frequent change in instruments even when new research findings offered tempting avenues for change. However, selected instruments have been added and existing instruments modified as the need and opportunity arose. Thus, data are not complete on all instruments for all Cycles and Phases. Table 1 presents the TPEP instrumentation and sources of data. Brief descriptions of these instruments are as follows:

Career Base Line Data

Career base line data for participants are obtained primarily from three sources--the Career Base Line Data Questionnaire (CBLD), the Teacher Preparation Evaluation Inventory (TPEI), and transcripts of grades. The CBLD questionnaire is designed to obtain demographic data from participants not readily available from other sources. Initial personal and professional background information is collected for student teachers and updated as participants continue in the program.

Table 1
Categories of Data Collection for TPEP

<u>Variable</u>	<u>Source</u>	<u>Instrument</u>
Career Line Data	Teacher	Demographic data questionnaire Undergraduate GPA's Teacher Preparation Evaluation Inventory Follow-up Questionnaire Ratings of Teacher Education Programs
Standardized Measures	Teacher	F-Scale (authoritarianism) Rokeach Dogmatism Scale Teacher Concerns Checklist
Direct Classroom Observation	Trained Observers	Interaction Analyses Classroom Observation Record Observer Checklist
Pupil, Peer, and Supervisor Evaluations	Pupils Peers Supervisor	Student Evaluation of Teaching I and II Teacher Evaluation by Peer/Supervisor

The perceptions of participants toward the university's preparation program is obtained through administering the Teacher Preparation Evaluation Inventory. In addition, a measure of the problems encountered in teaching are obtained by this instrument. Participants are asked to respond to a Likert-type scale for a number of items as well as to four open-ended items.

Four grade point averages (GPA) are computed from the participants' transcripts of grades. Overall GPA, professional education GPA, subject GPA, and student teaching grade are entered into the data files as separate variables at the completion of the student's undergraduate teacher preparation program.

Direct Classroom Observation

Two direct classroom observation systems are employed to obtain data on participants' classroom behavior. Observers are trained in the use of these systems, and interobserver reliability is established each year. The Classroom Observation Record, developed by Ryans (1960), is used to assess four dimensions of pupil behavior and eighteen dimensions of teacher behavior. Each dimension is carefully described and defined in a glossary accompanying the recording form. A seven interval scale is used to rate each of the pupil and teacher dimensions immediately after each observation period. Shiek and Adams (1978)

found that sixteen of the eighteen teacher behaviors formed three major factors.* Factor A can be described as organized, confident, and systematic classroom behavior; Factor B as empathetic, understanding, and adaptable classroom behavior; and Factor D as stimulating, original, and alert teaching behavior. A fourth factor, Factor C, is composed of ratings of student behaviors characterized by alert, responsible, and confident classroom behavior. Two additional teacher dimensions not included in the factor structure are "fairness" and "attractiveness".

Interaction Analysis (IA)

A nineteen category Classroom Interaction Analysis System provides data on teacher-student verbal interaction and, to a lesser extent, nonverbal behavior. This system is a modification of the Flanders' (1970) system of interaction analysis by Adams and Sandefur (1976). Twelve categories of teacher talk, three categories of student talk, and four nonverbal categories comprise the system. The observer records a numerical value corresponding to a specific category every three seconds or every time the category changes. Thus, an objective record is obtained of verbal interaction occurring in the classroom. Two twenty minute observations per participant are recorded. Appendix C contains the specific categories and the variables obtained from the CIAS.

Pupil, Peer, and Supervisor Evaluations

Perceptions about each participant are obtained from pupils, peers, and supervisors. These data are collected for each phase of TPEP with the only exception occurring in Phase I. For Phase I the cooperating teacher rather than peers and supervisors rates the participant as a student teacher. Peers and supervisors are asked to rate participants on two instruments, TEP/S and TEP/S II. The TEP/S instrument was developed at Kansas State Teachers' College and obtains ratings on four broad items related to teacher behavior. The TEP/S II instrument

*The COR factor structure reported here closely approximates that found by Ryans (1960).

was developed by Adams (1978) and consists of seventeen items designed to measure three areas of perceived teacher behavior. The TEP/S II has recently been developed and limited data are available at this time.

/ Perceptions of pupils about each participant are obtained from the SET I and II. SET I, developed by Veldman and Peck, (1970) allows students to rate the teacher on ten items that measures five dimensions of teaching behavior. This instrument was derived from the Pupil Observation Survey Report developed by McClain. Veldman (1970) found the SET I could be used with pupils in the third grade and above. However, use of this instrument has been limited to grade four and above for the TPEP study.

The Student Evaluation of Teaching II, developed by Haak, Kleiber, and Peck, (1970) measures three dimensions of teaching as perceived by pupils. True-False responses are obtained from 23 statements regarding the teacher's behavior and feelings toward students. Two forms of this instrument allow data to be collected from pupils in grades kindergarten through sixth. A verbal, non-pencil-paper, card form is administered to kindergarten through third grade students while a machine-scorable form is administered to fourth through sixth grade students.

Standardized Measures

Three instruments are administered to participants to obtain measures of authoritarianism, dogmatism, and level of concern about teaching. These data are collected for each Phase of TPEP.

The F-Scale, forms 45 and 40, was developed by Adorno and others (1964) to measure individual prejudices and antidemocratic tendencies. This 28 item scale refers to opinions regarding a number of social groups and issues.

To provide supplementary data regarding dogmatic tendencies, the Rokeach Dogmatism Scale (1960) is administered to each participant along with the F-Scale. This 40 item scale measures dogmatic tendencies by requiring the participant to respond to a six-point, agree to disagree, scale for each item. Since the Rokeach scale was added in 1975, data are incomplete for earlier participants.

A recent addition to the instrumentation of TPEP is the Teacher Concerns Checklist (George, 1974). This instrument allows for measures of the concerns teachers have about the teaching profession and students. The first administration of this instrument in TPEP was during the Spring 1976 data collection period.

Graduate assistants have been the primary source of manpower for data collection. The program director has conducted the training of graduate assistants in the two observation systems: the Classroom Observation Record and the Classroom Interaction Analysis System. A minimum interobserver reliability standard of .75 has been adhered to and consistency across years has been maintained by the director. In addition, training in the administration of the Student Evaluation of Teaching I and II has been given to each graduate assistant observer prior to data collection.

Actual data collection consist of two visits to each participating graduate toward the latter part of the spring semester every other year for five years. Classroom observations are made during each visit, and packets of instruments are left for the participant, two selected peer teachers and the supervisor, at the first visit. Peer teachers and the supervisor are requested to return their completed rating forms, the Teacher Evaluation by Peer/Supervisor I and II, via a self-addressed pre-postage paid envelope. The participants' packet, consisting of standardized measures of teacher characteristics and concerns and various demographic and teacher perceptions data, are collected at the second visit. Also, during the second visit, a student evaluation of the participating teacher is obtained.

A major change in TPEP occurred in 1977 and 1978 when the sampling procedures changed from the random selection of twenty elementary and twenty secondary student teachers to a larger initial sample of student teachers. This procedure change was due to the low rate of student teachers who enter

the profession after graduation and to the dropout rate of teachers after the first year of teaching. Present plans include obtaining selected self-report data on all student teachers and conducting a follow-up of a random sample of 40 who enter the teaching profession in Kentucky the first year after graduation. This procedure will maximize the number of participants during student teaching and during their first year of teaching. The loss of observation data and student evaluations for student teachers is compensated for by the increased numbers in Phase 1 and Phase 2. Table 2 presents the current status of participants.

TABLE 2
Number of Teachers Who Remained in the Study
Sample Over a Six-Year Period

Cycle	Level	Phase 1	Phase 2	Phase 3	Phase 4
		Student Teaching	1st Year Teaching	3rd Year Teaching	5th Year Teaching
Cycle I (1972)	Elementary	20	15	10	6
	Secondary	18	7	3	3
Cycle II (1973)	Elementary	20	13	7	6
	Secondary	20	8	5	4
Cycle III (1974)	Elementary	20	16	13	11
	Secondary	17	9	8	8
Cycle IV (1975)	Elementary	17	14	11	No data for Cycle IV Cycle V Cycle VI and Cycle VII
	Secondary	20	6	4	
Cycle V (1976)	Elementary	20	12	8	
	Secondary	20	5	7	
Cycle VI (1977)	Elementary	39	21	No data for Cycle VI and Cycle VII	
	Secondary	32	12		
Cycle VII (1978)	Elementary	26	21		
	Secondary	18	11		
Total	Elementary	162	112	49	23
	Secondary	145	58	27	15

Analyses

Data are stored in a "master" data set that allows flexible management of data and that is compatible with various statistical packages. New data are added to the master data set each year for both the repeated measures across Phases and data from new samples of participants. A second data set is maintained for storage and analyses of student teacher data.

The large and rather complex data set affords opportunities for multiple types of analyses on numerous problem areas. The continuing nature of TPEP also contributes to the continuous nature of data analyses. The analyses reported in this paper should be considered more as representative of the stage of development in TPEP analyses than as a definitive, comprehensive or completed work. Problems with data coding and processing have limited, somewhat, the intended presentation; however, a complete analyses on the topics of teacher attrition and change is beyond the scope of this paper. Thus, selected analyses and findings are offered that appear to provide some insight into these topics.

Problem One: Factors related to teachers' failure to enter and/or remain in teaching.

Each fall a survey of TPEP participants was conducted to determine their occupational status. If not teaching, they were asked to give reasons why. Table 3 presents reasons given for not entering or for leaving the teaching profession. A major limitation of the TPEP is the lack of resources to follow non-teaching graduates to determine if they enter teaching at a later time. Presently, if a participant does not enter teaching the next year after graduation, or if a teacher leaves teaching after employment they are eliminated from further follow-up.

From Table 3 the most often given reasons for not entering teaching is lack of an available or desirable teaching job, accounting for 42% of the total reasons. A small (8%) but disturbing percentage of teachers reported their reason for not entering teaching was that they did not want to teach; another 10% of first year

dropout teachers gave the same reason. This percentage was determined by only 10 teachers, but represents approximately eight percent of the total teachers who left teaching since 1972. Reasons for leaving teaching between the first and third years and the third and fifth years appear to be family oriented, i.e., marriage and/or pregnancy.

Table 3
Percent of TPEP Participants Who Have Not Entered Teaching
During Years 1, 3, and 5 by Reasons Given

Reasons	Attrition After Graduation			Attrition Between 1st and 3rd Year			Attrition Between 3rd and 5th Year		
	Elem. (n=30)	Sec. (n=65)	Total	Elem. (n=19)	Sec. (n=11)	Total	Elem. (n=6)	Sec. (n=1)	Total
Salary	0	5	3	0	9	3	0	0	0
Graduate Student	7	6	6	0	0	0	0	0	0
Marriage	7	3	4	11	0	7	33	0	29
Pregnancy	3	0	1	26	9	20	17	0	14
Military	0	2	1	0	0	0	0	0	0
Did Not Want To Teach	7	9	8	5	18	10	0	0	0
No Job in Location	17	18	18	16	18	20	0	0	0
No Job Anywhere	20	26	24	5	0	3	0	0	0
Other	30	22	26	37	36	37	50	100	57
Data Missing	10	12	12	0	9	3	0	0	0
Total TPEP Participants	145	123		68	39		31	15	

In addition to self-report reasons for not entering or remaining in teaching, analyses were made of selected variables to determine if factors could be identified from the TPEP data set that were related to the attrition of graduates. A discriminate analyses statistical technique was employed from the Statistical Package for the Social Sciences (1975) to determine a multiple correlation coefficient between selected sets of independent variables and membership in the teaching group or attrition group. Variables measured in student teaching were the independent variables used to predict entry or non-entry into teaching, while measures taken at the end of the first year of teaching were used to predict attrition between the first and third year of teaching.

In predicting attrition, often n-sizes were less than desirable due to attrition from student teaching into the teaching profession and/or due to the time an instrument was introduced into TPEP. In some cases the n-size and number of independent variables produced suspected spuriously high correlations. However, n-sizes are reported in such cases and the researcher may make his/her own interpretation of the analyses. When correlations reached .40 or higher, additional tables were constructed to report how well that particular set of variables was able to predict the outcomes of attrition. The first analyses will deal with attrition from student teaching into first year teaching followed by analyses of attrition from first year teaching to third year teaching.

Analyses of Attrition from Student Teaching to First Year Teaching

Selected variable sets were analyzed to determine if factors could be identified that related to attrition of graduates from entering teaching after graduation. Variables measured from multiple sources were selected for the analyses to obtain predictor variable sets from a broad perspective. Results of these analyses are presented in Table 4.

Low multiple correlation coefficients were found for each set of variables when correlated with attrition/teacher group membership. It would appear that the selected variables for these analyses were not factors related to entry into teaching.

Table 4

Multiple Correlation Coefficients of Selected Variables
and Attrition/Teaching Group Membership from Student Teaching
to First Year Teaching

Variable Set & Source	Grade Level	Group	Group n	Variable n	Multiple Correlation
GPA (Univ. records)	Sec.	Att.	79	4	.245
		Tch.	43		
	Elem.	Att.	41	4	.222
		Tch.	87		
TCC (Participant)	Sec.	Att.	37	5	.243
		Tch.	16		
	Elem.	Att.	22	5	.338
		Tch.	31		
Demographic (Participant)	Sec.	Att.	82	2	.075
		Tch.	45		
	Elem.	Att.	42	2	.094
		Tch.	90		
COR Factor (Observers)	Sec.	Att.	83	6	.087
		Tch.	46		
	Elem.	Att.	42	6	.286
		Tch.	90		
SET I (Students)	Sec.	Att.	38	3	.079
		Tch.	16		
	Elem.	Att.	27	3	.136
		Tch.	46		
TEP/S (Supervising teacher)	Sec.	Att.	74	4	.204
		Tch.	45		
	Elem.	Att.	41	4	.261
		Tch.	86		

Analyses of Attrition from First Year Teaching to Third Year Teaching

As for the previous analyses, variables were selected that represented measurement from multiple sources. The sample sizes for these analyses were understandably much smaller than for the entry attrition analyses. The nature of the multiple correlation technique utilized is such that as the number of variables approach the number of cases, the multiple correlation approaches 1.00. Thus, there is concern that some correlations that were above .40 may be spuriously high due to n-size and are not true indicators of the relationship between the predictor variable set and group membership. To assist somewhat in this problem, only the relationships above .40 that had at least a 5 (cases) to 1 (predictor variable) ratio were considered for further analyses. Even in these analyses, there is suspicion of inflated correlations. Table 5 contains the results of these analyses.

Table 5

Multiple Correlation Coefficients of Selected Variables
and Attrition/Teaching Group Membership from First Year Teaching
to Third Year Teaching

Variable Set & Source	Grade Level	Group	Group n	Variable n	Multiple Correlation
TCC (participant)	Sec.	Att.	6	5	.678
		Tch.	13		
	Elem.*	Att.	15	5	.410
		Tch.	28		
COR Factors (observers)	Sec.	Att.	16	6	.317
		Tch.	29		
	Elem.	Att.	31	6	.250
		Tch.	59		
SET I (students)	Sec.	Att.	14	5	.213
		Tch.	25		
	Elem.	Att.	9	5	.226
		Tch.	20		
SET II (students)	Sec.	Att.	7	3	.310
		Tch.	12		
	Elem.	Att.	15	3	.123
		Tch.	30		
TEP/S (peer)	Sec.	Att.	8	4	.455
		Tch.	9		
	Elem.	Att.	14	4	.308
		Tch.	29		
TEP/S (supervisor)	Sec.*	Att.	13	4	.431
		Tch.	24		
	Elem.	Att.	26	4	.159
		Tch.	50		
F-Scale & Rokeach (participant)	Sec.	Att.	7	2	.180
		Tch.	21		
	Elem.	Att.	18	2	.329
		Tch.	39		
Interaction Analyses (observer)	Sec.	Att.	16	10	.595
		Tch.	29		
	Elem.	Att.	28	10	.355
		Tch.	59		

* These variable sets met the minimum standards for further analyses.

These results are similar to those found for entry attrition. There does not appear to be a strong factor among the selected variable sets that is related to attrition/teaching group membership. The two variable sets of "teacher concerns" for elementary and "supervisor ratings" for secondary minimally met the established criteria, but were not impressive in the strength of relationship found. Table 6 and Table 7 present the predictive strength of these variable sets.

Table 6

Number and Percent of Attrition/Teacher
Group Membership Cases Predicted by the Teacher
Concerns Checklist Variable Set for Elementary TPEP Participants*

	Correctly Predicted		Incorrectly Predicted	
	$\frac{n}{N}$	$\%$	$\frac{n}{N}$	$\%$
Attrition Group	8	53	7	47
Teaching Group	23	82	5	18
Total Group	31	72	12	28

* Multiple Correlation = .410
The Mean concerns were higher for the teaching group than the attrition group.

Table 7

Number and Percent of Attrition/Teacher Group
Membership Cases Predicted by the Supervisor
Ratings from the Teacher Evaluation by
Peer/Supervisor for Secondary TPEP Participants*

	Correctly Predicted		Incorrectly Predicted	
	$\frac{n}{N}$	$\%$	$\frac{n}{N}$	$\%$
Attrition Group	9	69	4	31
Teaching Group	20	83	4	17
Total Group	29	78	8	22

* Multiple Correlation = .431
Mean ratings were generally higher for the teacher group than the attrition group.

Summary

A possible explanation for the lack of correlation between attrition/teacher group membership and the sets of predictor variables could be the gross measures of teacher attrition after graduation. For example, graduates who do not go into teaching because of graduate school may be different from graduates who do not enter teaching because of a lack of available position. These analyses did not attempt to study the attrition group by reason for not entering teaching, but grouped all non-teaching graduates into one attrition group. If this factor was considered, stronger relationships may be found.

A second possible explanation for the lack of correlations found may be the type of analyses used for predicting group membership. An analysis of variance technique for individual variables may be more meaningful in identifying factors than the multiple correlation approach utilized in these analyses. Through casual observation of the data there appeared to be differences in the means of the attrition group and the teaching group though no tests of significance have been made.

Future expansion of TPEP as described earlier will permit more exploration of these and other variables through the increase of initial n-size (all student teachers) and the increase in the follow-up sample of first year teachers. For example, it should be possible, with larger samples, to study grade levels and subject areas as unique groups. The findings, while somewhat disappointing, suggest a more complex set of factors operating that are related to attrition, than were studied in this paper.

Problem Two: Change in teacher behavior over three and five years of teaching experience.

The repeated measures of variables from student teaching through five years of teaching experience offers a longitudinal data base for which analyses of change can readily be made. Longitudinal data are rare due to obvious continuing resource commitments by institutions. The ability of TPEP to provide such data offers a unique look at teachers as they mature in the profession. These analyses will focus on data collected through direct classroom observation and will utilize a two-way repeated measures analyses of variance technique from the Bio Medical (1975) statistical package. The analyses of variance technique tests for differences between means 1) across Phases or years of teaching, 2) across Cycles or samples, and 3) the interaction effects between Phase and Cycle.

The two sets of variables are from the Classroom Observation Record (COR) and the Classroom Interaction Analyses System (CIAS), a modification of the Flanders interaction analyses system. Each set of data is discussed separately.

The Classroom Observation Record (COR) consists of 22 dimensions of teacher and pupil behavior each of which is judged by a trained observer along a seven point scale. These 22 items have been reduced through factor analyses (Shiek and Adams, 1978) into four factors. These factors are as follows:

Factor A - Organized, confident, and systematic teacher behavior.

Factor B - Empathetic, understanding, and adaptable teacher behavior.

Factor C - Alert, responsible, and confident student behavior.

Factor D - Stimulating, original, and alert teacher behavior.

Two additional dimensions not included in the four factor solution were "fair" teacher behavior and teacher "attractiveness."

The first analyses were made of Phase 1, student teacher data, through Phase 3, third year teacher data. Four Cycles have been completed for both secondary and elementary participants, providing a reasonable n-size ($n=39$ for elementary, $n=19$ secondary) for these analyses. Figure 2 presents the outcomes. Source tables from which graphs were taken are contained in Appendix A.

Elementary teachers had a clear increase ($p < .05$) in desirable teaching behavior during the third year of teaching over student teaching and first year teaching behavior for Factors A, B, and C. The increase for Factor D was not as dramatic ($p < .10$) but maintained a pattern similar to the other Factors. A similar pattern was observed for secondary teachers for Factors A and D with increases significant beyond the .05 level. For Factor B, the increase appeared more linear with increases in desirable behavior occurring the first and third year over student teaching classroom behavior. While there seemed to be increases across years in Factor C, the difference was not significant at the .05 level.

When differences in means across Cycles were examined, no significant main effects were noted. Likewise, there were no significant effects observed for Cycle Phase interaction.

In the second set of analyses data were analyzed across a six year period from student teaching through the fifth year of teaching. Figure 3 presents these analyses. Two cycles have been completed affording an available n-size of 10 for elementary and 7 for secondary. While these n-sizes are small, there were significant results obtained beyond the .05 and/or .10 levels for all factors of the COR. As was the case in the previous analyses, main effects differences across cycles and interaction effects were not found to be significant at the .05 level or beyond. Appendix B contains tabular presentation of these analyses.

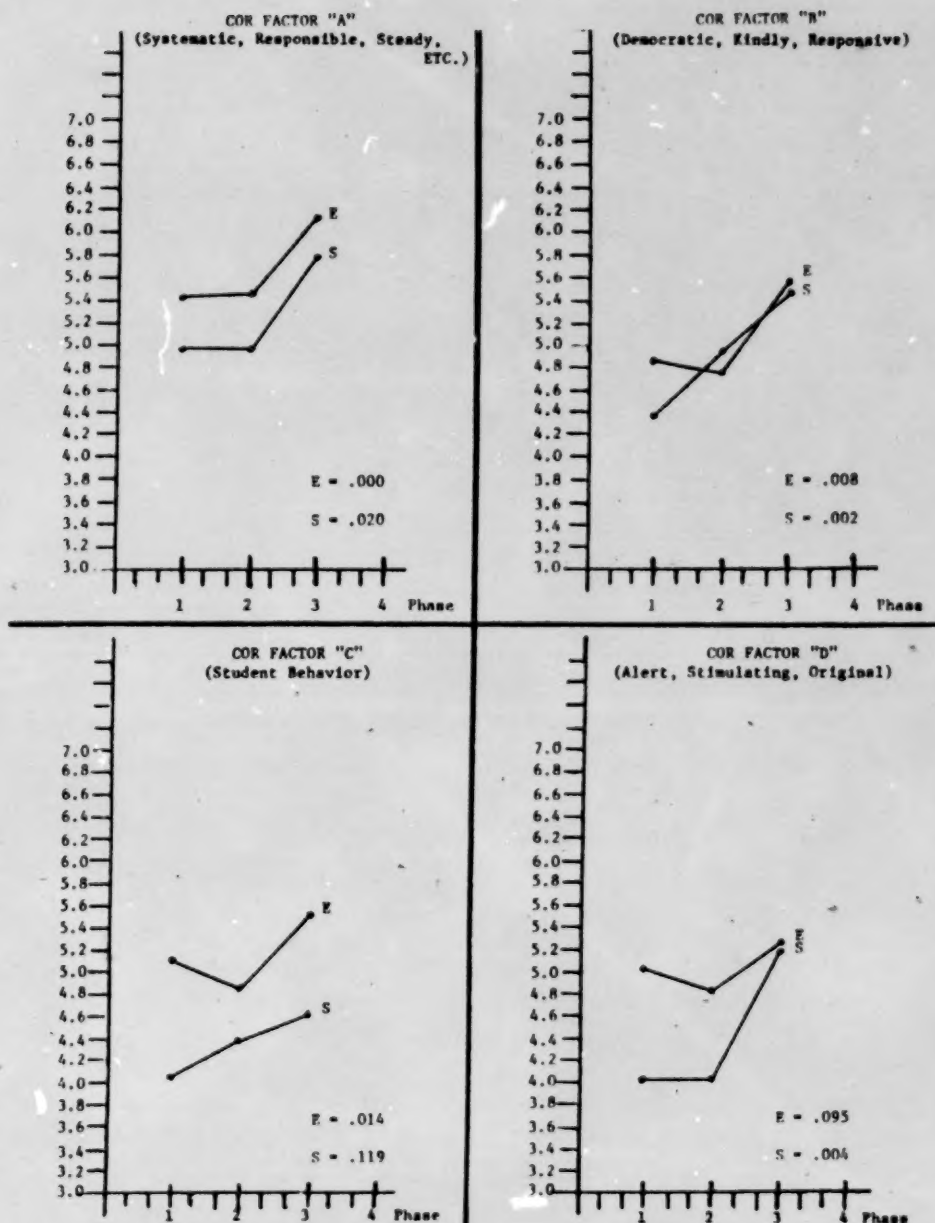


Figure 2 - Graphs of COR Repeated Measures ANOVA across TPEP Phases 1, 2, and 3.

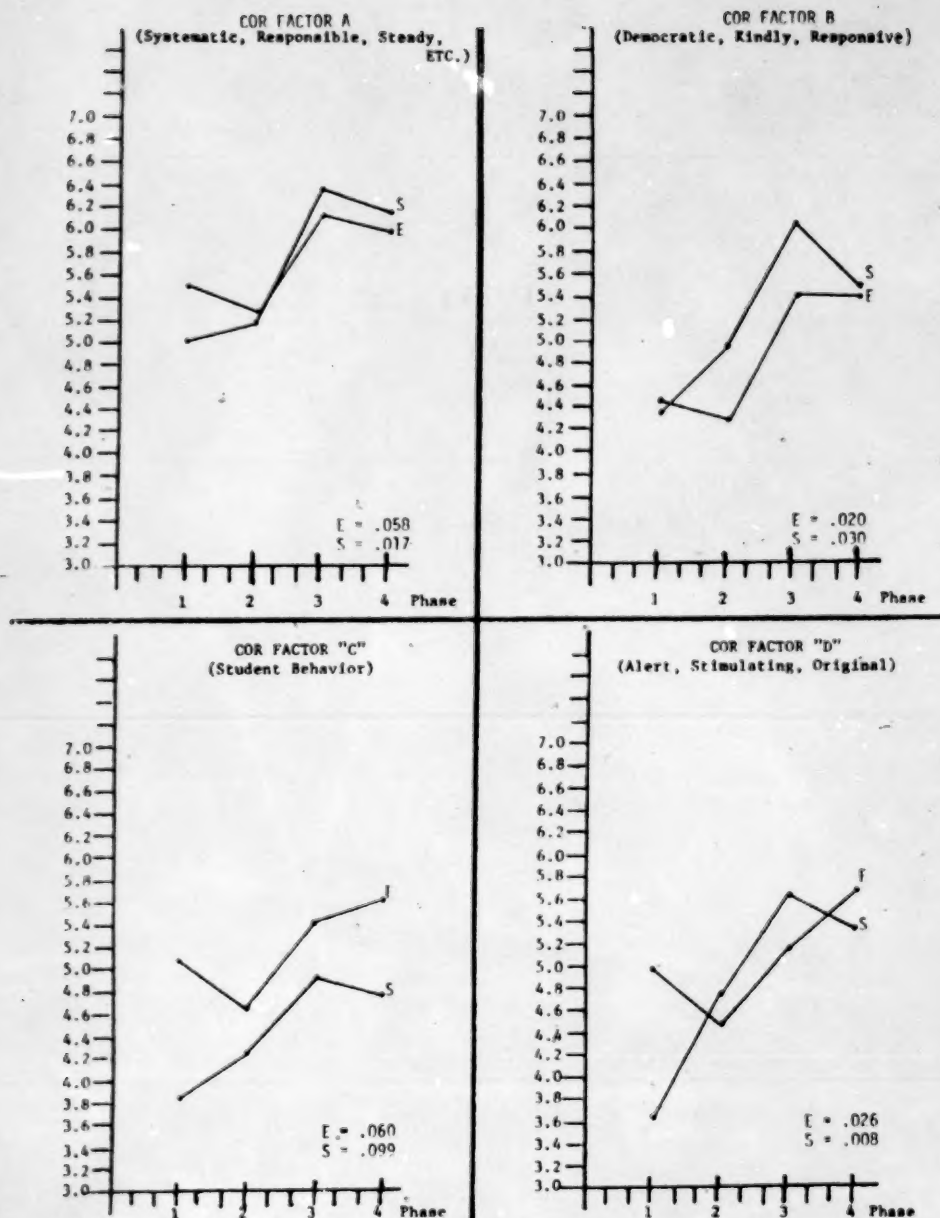


Figure 3 - Graphs of COR Repeated Measures ANOVA
Across TPEP Phases 1, 2, 3, and 4.

As was the case with the previous analyses, there was a general marked increase in desirable teacher behavior the third year of teaching. However, elementary teachers generally tended to stabilize or continue to improve from the third year to the fifth year. Secondary teachers appeared to stabilize or decline in desirable behavior between the third and fifth years. These observations are highly speculative and were not found statistically significant and are mentioned only as possible trends for continued study.

These findings from the COR analyses seem to establish a need for more support of the first year teacher in transitioning from preservice teacher education programs into the profession as first year teachers. Administrators and faculty in the college of education at Western Kentucky University are presently considering these data in deciding future directions for inservice and advanced degree programs in teacher education.

From Figures 2 and 3 there also appeared to be differences between elementary and secondary teachers for the various Phases. When t ratios were computed for COR variables in Phase 1, Phase 2, and Phase 4, significant differences were noted for Phase 1 and 2, but not for Phase 4. Phase 3 analyses were unavailable at the time of this writing due to technical problems with the computer. Table 8 presents these analyses. It appears that secondary student teachers and first year teachers are significantly below their elementary counterparts for all but COR Factor B. Phase 4 analyses did not yield significant differences for COR data between elementary and secondary participants.

Table 8
Differences Between Elementary and Secondary
TPEP Participants on COR Factors

COR	PHASE*								
	$\bar{x}$	$\frac{1}{t}$	p	$\bar{x}$	$\frac{2}{t}$	p	$\bar{x}$	$\frac{4}{t}$	p
Factor A									
Elem.	5.54	2.34	.02	5.70	2.06	.04	6.07	.08	.934
Sec.	5.27			5.36			6.10		
Factor B									
Elem.	5.12	.99	.32	5.18	.50	.62	5.38	.20	.841
Sec.	4.99			5.08			5.41		
Factor C									
Elem.	5.19	3.90	.00	5.11	2.36	.02	5.60	1.52	.157
Sec.	4.66			4.65			4.77		
Factor D									
Elem.	5.07	3.82	.00	5.26	3.54	.00	5.68	.78	.45
Sec.	4.53			4.51			5.31		

* Phase 1 - Elementary n = 117, Secondary n = 106
 Phase 2 - Elementary n = 90, Secondary n = 45
 Phase 4 - Elementary n = 11, Secondary n = 7

Ten variables consisting of ratios from the CIAS were analyzed across Phases 2, 3, and 4. (See Appendix C for descriptions of CIAS variables.) The same repeated measures analyses of variance technique used for COR data was used for CIAS analyses. None of the teacher verbal behavior variables were found to differ significantly across Phases, indicating that teachers tend to remain consistent in their verbal behavior patterns from first through fifth years of teaching experience.

The ratio of "Student Questions to Student Responses" was significantly different across the three phases, but also approached significance in the interaction between Phase and Cycle. Most of these differences appear to be generated from the Cycle II Phase 2 mean of .324, a considerably larger value than the other means. Thus, the interpretation of this analysis is difficult and findings should be considered tentative until additional samples are studied. Table 9 contains this analysis.

"Student Talk to Total", the proportion of student talk, increased substantially from the first year of teaching to the third and fifth years of teaching. It would appear that more student verbal behavior was encouraged as the teachers became more experienced. Similar findings were found for the variable "Student Talk to Teacher Talk" and probably reflect the same increase in student verbal behavior. Table 10 and Table 11 contain the results of these analyses, respectively.

"Silence to Total", the proportion of silence categories recorded, decreased from Phase 2 to Phase 3 and Phase 4. The silence category most often reflects non-verbal directed activity. These findings are subject to bias from the presence of the observer in the classroom and may not be typical classroom behavior. However, the author feels strongly that in the large majority of the classrooms visited, the observer bias has been minimal.

Table 9
Repeated Measures for Elementary Variable
Student Questions to Student Responses

CYCLE	n	PHASE				$\bar{X}$	Probability		
		1	2	3	4		Phase	Cycle	Interaction
I	6		.084	.039	.047	.057	<u>.010</u>	<u>.100</u>	<u>.052</u>
II	4		.324	.048	.034	.135			
$\bar{X}$	10		.180	.043	.042	.088			

Table 10
Repeated Measures for Elementary Variable
Student Talk To Total

CYCLE	n	PHASE				$\bar{X}$	Probability		
		1	2	3	4		Phase	Cycle	Interaction
I	6		.229	.376	.317	.307	.025	.837	.656
II	4		.245	.341	.361	.316			
$\bar{X}$	10		.235	.362	.335				

Table 11
Repeated Measures for Elementary Variable
CIAS Student Talk to Teacher Talk

CYCLE	n	PHASE				$\bar{X}$	Probability		
		1	2	3	4		Phase	Cycle	Interaction
I	6		.475	.809	.544	.609	.059	.930	.569
II	4		.403	.740	.716	.620			
$\bar{X}$	10		.446	.781	.613				

Table 12
Repeated Measures for Elementary Variable
Silence to Total

CYCLE	n	PHASE				$\bar{x}$	Probability		
		1	2	3	4		Phase	Cycle	Interaction
I	6		.276	.125	.096	.166	[.035]	[.456]	[.244]
II	4		.216	.208	.149	.191			
$\bar{x}$	10		.252	.158	.117	.176			

Summary

The intent of this paper has been to introduce the Western Kentucky University Teacher Preparation Evaluation Program as one model of evaluating teacher education programs through the systematic follow-up of graduates. New findings from teacher effectiveness research and advancement in observational and other measurement techniques have provided a larger more lucrative pool from which to develop evaluation systems than was available in 1972. Undoubtedly, a somewhat different set of instruments and data gathering techniques would emerge if the model were revised in light of the new knowledge base. The important issue is not the specific instrumentation in use by TPEP; rather, the importance should be on a system which provides for objective, longitudinal data to be collected from multiple sources within a research/conceptual framework. Such evaluation systems are essential if teacher education programs are to improve and provide products to meet the demands of contemporary education.

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APPENDIX A

Table 1

Repeated Measures for Elementary Variable COR A Phase 1-3 Cycle 1-4

CYCLE	<u>n</u>	PHASE				$\bar{X}$
			1	2	3	
I	10	$\bar{X}$	5.300	5.250	6.16	5.570
		SD	.793	.871	.453	
II	6	$\bar{X}$	5.583	4.983	5.983	5.517
		SD	1.096	.688	.574	
III	13	$\bar{X}$	5.469	5.854	6.279	5.864
		SD	.554	1.064	.330	
IV	10	$\bar{X}$	5.520	5.760	5.960	5.747
		SD	.873	.580	.589	
$\bar{X}$	39		5.456	5.541	6.118	5.705

Main effects for Phase .000
 Main effects for Cycle .335
 Interaction effects .349

Table 2

Repeated Measures for Secondary Variable COR A Phase 1-3 Cycle 1-4

CYCLE	<u>n</u>	PHASE				$\bar{X}$
			1	2	3	
I	3	$\bar{X}$	4.967	5.333	6.533	5.611
		SD	.929	1.301	.058	
II	5	$\bar{X}$	4.700	5.100	6.100	5.300
		SD	1.158	.791	.292	
III	8	$\bar{X}$	5.137	4.775	5.325	5.079
		SD	.560	1.585	.667	
IV	3	$\bar{X}$	5.200	5.633	5.167	5.333
		SD	.954	.252	1.332	
$\bar{X}$	19		5.005	5.084	5.695	5.261

Main effects for Phase .083
 Main effects for Cycle .523
 Interaction effects .481

Table 3

28

Repeated Measures for Elementary Variable COR B Phase 1,2,3, Cycle I,II,III,IV

		PHASE				
CYCLE	<u>n</u>		1	2	3	$\bar{X}$
I	10	$\bar{X}$	4.310	4.400	5.470	4.727
		SD	1.137	1.275	1.361	
II	6	$\bar{X}$	5.017	4.500	5.600	5.039
		SD	1.179	1.658	.890	
III	13	$\bar{X}$	5.308	5.269	5.623	5.400
		SD	1.010	1.527	.878	
IV	10	$\bar{X}$	5.120	4.920	5.280	5.107
		SD	1.140	1.427	1.257	
$\bar{X}$	39		4.959	4.838	5.492	5.097

Main effects for Phase .004
 Main effects for Cycle .419
 Interaction effects .564

Table 4

Repeated Measures for Secondary Variable COR B Phase 1,2,3 Cycle I,II,III,IV

		PHASE				
CYCLE	<u>n</u>		1	2	3	$\bar{X}$
I	3	$\bar{X}$	3.933	5.300	6.300	5.178
		SD	.929	1.300	.436	
II	5	$\bar{X}$	4.340	4.900	5.720	4.987
		SD	.691	.778	.507	
III	8	$\bar{X}$	4.575	4.863	5.075	4.837
		SD	.822	1.511	.573	
IV	3	$\bar{X}$	5.700	5.133	5.133	5.322
		SD	.529	1.222	1.779	
$\bar{X}$	19		4.589	4.984	5.447	5.007

Main effects for Phase .027
 Main effects for Cycle .689
 Interaction effects .189

Table 5

Repeated Measures for Elementary Variable COR C Phases 1,2,3 Cycle I,II,III,IV

CYCLE	<u>n</u>	PHASE				$\bar{X}$
			1	2	3	
I	10	$\bar{X}$	4.850	4.670	5.460	4.993
		SD	1.288	1.137	.659	
II	6	$\bar{X}$	5.267	4.133	5.400	4.933
		SD	1.067	.843	.844	
III	13	$\bar{X}$	5.138	5.431	5.654	5.408
		SD	.853	1.447	.711	
IV	10	$\bar{X}$	5.300	4.730	5.100	5.043
		SD	.906	1.099	.801	
$\bar{X}$	39		5.126	4.856	5.423	5.135

Main effects for Phase .006
 Main effects for Cycle .436
 Interaction effects .205

Table 6

Repeated Measures for Secondary Variable COR C Phase 1,2,3 Cycle I,II,III,IV

CYCLE	<u>n</u>	PHASE				$\bar{X}$
			1	2	3	
I	3	$\bar{X}$	3.800	4.900	5.267	4.656
		SD	1.732	.755	.252	
II	5	$\bar{X}$	3.640	3.920	4.920	4.160
		SD	1.050	.507	.698	
III	8	$\bar{X}$	4.525	4.537	4.213	4.425
		SD	.891	1.514	.476	
IV	3	$\bar{X}$	5.500	5.067	4.167	4.911
		SD	.529	.462	1.930	
$\bar{X}$	19		4.332	4.516	4.558	4.468

Main effects for Phase .698
 Main effects for Cycle .388
 Interaction effects .131

Table 7

Repeated Measures for Elementary Variable COR D Phases 1,2,3 Cycle I,II,III,IV

		PHASE				
CYCLE	<u>n</u>		1	2	3	$\bar{X}$
I	10	$\bar{X}$	4.740	4.630	4.920	4.763
		SD	1.064	1.148	1.377	
II	6	$\bar{X}$	4.817	4.167	5.533	4.839
		SD	1.055	1.157	.933	
III	13	$\bar{X}$	5.415	5.362	5.523	5.433
		SD	.848	1.289	.778	
IV	10	$\bar{X}$	4.720	5.240	5.280	5.080
		SD	1.202	1.302	1.093	
$\bar{X}$	39		4.972	4.959	5.308	5.079

Main effects for Phase .091
 Main effects for Cycle .219
 Interaction effects .471

Table 8

Repeated Measures for Secondary Variable COR D Phase 1,2,3 Cycle I,II,III,IV

		PHASE				
CYCLE	<u>n</u>		1	2	3	$\bar{X}$
I	3	$\bar{X}$	3.767	5.200	6.200	5.056
		SD	1.102	1.353	.361	
II	5	$\bar{X}$	3.600	4.540	5.280	4.473
		SD	.834	.896	.769	
III	8	$\bar{X}$	4.437	3.375	4.725	4.179
		SD	1.472	1.233	.696	
IV	3	$\bar{X}$	4.053	4.200	4.767	4.556
		SD	.814	1.234	1.563	
$\bar{X}$	19		4.053	4.200	5.111	4.454

Main effects for Phase .006
 Main effects for Cycle .320
 Interaction effects .106

APPENDIX B

Table 1

Repeated Measures for Elementary Variable COR A Phase 1-4 Cycle 1-2

		PHASE					
CYCLE	<u>n</u>		1	2	3	4	$\bar{X}$
I	6	$\bar{X}$	5.517	5.450	6.333	6.000	5.825
		SD	.788	.568	.403	.473	
II	4	$\bar{X}$	5.475	4.925	5.775	5.975	5.537
		SD	1.360	.866	.591	.613	
$\bar{X}$	10		5.500	5.240	6.110	5.990	5.710

Main effects for Phase .058

Main effects for Cycle .180

Interaction effects .780

Table 2

Repeated Measures for Secondary Variable COR A Phase 1-4 Cycle 1-2

		PHASE					
CYCLE	<u>n</u>		1	2	3	4	$\bar{X}$
I	3	$\bar{X}$	4.967	5.333	6.533	6.367	5.800
		SD	.929	1.301	.058	.681	
II	4	$\bar{X}$	4.950	4.925	6.150	5.900	5.481
		SD	1.170	.793	.311	.804	
$\bar{X}$	7		4.957	5.100	6.314	6.100	5.618

Main effects for Phase .017

Main effects for Cycle .369

Interaction effects .959

Table 3

Repeated Measures for Elementary Variable COR B Phase 1-4 Cycle 1-2

		PHASE					
CYCLE	<u>n</u>		1	2	3	4	$\bar{X}$
I	6	$\bar{X}$	4.200	4.450	5.400	5.050	4.775
		SD	1.365	1.190	1.663	1.078	
II	4	$\bar{X}$	4.825	3.925	5.375	5.875	5.000
		SD	1.226	.513	.862	.822	
$\bar{X}$	10		4.450	4.240	5.390	5.380	4.865

Main effects for Phase .020
 Main effects for Cycle .685
 Interaction effects .440

Table 4

Repeated Measures for Secondary Variable COR B Phase 1-4 Cycle 1-2

		PHASE					
CYCLE	<u>n</u>		1	2	3	4	$\bar{X}$
I	3	$\bar{X}$	3.933	5.300	6.300	5.533	5.267
		SD	.929	1.300	.436	1.305	
II	4	$\bar{X}$	4.525	4.675	5.750	5.325	5.069
		SD	.640	.685	.580	.998	
$\bar{X}$	7		4.271	4.943	5.986	5.414	5.154

Main effects for Phase .030
 Main effects for Cycle .175
 Interaction effects .667

Table 5

Repeated Measures for Elementary Variable COR C Phase 1-4 Cycle 1-2

		PHASE					
CYCLE	<u>n</u>		1	2	3	4	$\bar{X}$
I	6	$\bar{X}$	5.167	4.967	5.483	5.250	5.217
		SD	.423	.9136	.794	1.126	
II	4	$\bar{X}$	4.925	4.125	5.275	5.975	5.075
		SD	.974	.838	.918	.714	
$\bar{X}$	10		5.070	4.630	5.400	5.540	5.160

Main effects for Phase .060
 Main effects for Cycle .630
 Interaction effects .272

Table 6

Repeated Measures for Secondary Variable COR C Phases 1-4 Cycle 1-2

		PHASE					
CYCLE	<u>n</u>		1	2	3	4	$\bar{X}$
I	3	$\bar{X}$	3.800	4.900	5.267	5.567	4.883
		SD	1.732	.755	.252	.723	
II	4	$\bar{X}$	3.825	3.775	4.775	4.175	4.137
		SD	1.115	.450	.714	1.417	
$\bar{X}$	7		3.814	4.257	4.986	4.771	4.457

Main effects for Phase .099
 Main effects for Cycle .178
 Interaction effects .493

Table 7

Repeated Measures for Elementary Variable COR D Phase 1-4 Cycle 1-2

		PHASE					
CYCLE	<u>n</u>		1	2	3	4	$\bar{X}$
I	6	$\bar{X}$	5.150	4.900	5.033	5.333	5.104
		SD	.907	.678	1.729	.314	
II	4	$\bar{X}$	4.575	3.800	5.275	6.075	4.931
		SD	1.274	.942	1.069	1.090	
$\bar{X}$	10		4.920	4.460	5.130	5.630	5.035

Main effects for Phase .026

Main effects for Cycle .718

Interaction effects .149

Table 8

Repeated Measures for Secondary Variable COR D Phase 1-4 Cycle 1-2

		PHASE					
CYCLE	<u>n</u>		1	2	3	4	$\bar{X}$
I	3	$\bar{X}$	3.767	5.200	6.200	5.833	5.250
		SD	1.102	1.353	.361	.569	
II	4	$\bar{X}$	3.500	4.300	5.150	4.925	4.469
		SD	.927	.829	.823	1.297	
$\bar{X}$	7		3.614	4.686	5.600	5.314	4.804

Main effects for Phase .008

Main effects for Cycle .074

Interaction effects .884

APPENDIX C

CIAS Category Description

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Category		Description of Behavior
	1	<u>Accepts Feeling</u> : Accepts and clarifies the feeling and tone of students in a non-threatening manner. Feelings may be positive or negative. Predicting and recalling feelings are also included.
	2	<u>Praises or Encourages</u> : Praises or encourages student action or behavior. Jokes that release tension not at the expense of another individual, saying "uh-huh" or "go on" are included.
T	3	<u>Accepts or Uses Students' Ideas</u> : Clarifying, building on, developing, and accepting Ideas of students.
E	4	<u>Asks Direct Questions</u> : Asking a question about content or procedure with the intent the student should give a direct recall response.
A		
C	41	<u>Asks Probing Questions</u> : Asking a question about content or procedure with the intent the student should give more information or explain further a statement or answer.
H		
E	42	<u>Asks Higher Order Questions</u> : Asking a question about content or procedure with the intent the student should give an answer that requires opinion, analysis, synthesis, evaluation, etc. on the part of the student.
R		
	5	<u>Answers Student Questions</u> : Answers to student questions regarding content or procedure.
T		
A	6	<u>Lecture Content</u> : Giving facts or opinions about the subject or content of the class; expressing own ideas, asking rhetorical questions.
L		
K	61	<u>Lecture Non-Content</u> : Giving information or making comments on procedures or topics other than content of class.
	7	<u>Corrective Feedback</u> : Telling a student directly that his answer or statement is incorrect.
	8	<u>Gives Directions</u> : Directions, commands, or orders to which a student is expected to comply immediately. Does not apply to information about procedures or future assignments.
	9	<u>Criticizes or Justifies Authority</u> : Direct statements of a critical nature intended to change student behavior from a non-acceptable to an acceptable pattern; bawling out the student; stating why the teacher is doing what he/she is doing so as to achieve or maintain control; rejecting or criticizing a student's opinion or judgment; using sarcasm.
	10	<u>Student Talk Initiated By Teacher</u> : Talk by students in response to requests or questions by teacher. The teacher initiates the contact or solicits student's statement.
S		
T		
U		
D		
E		
N		
T		
	101	<u>Student Initiated Talk</u> : Talk initiated by students, not in response to teacher talk.
	11	<u>Student Questions</u> : Questions concerning content or procedure that are directed to the teacher or other students.
	12	<u>Directed Practice or Activity</u> : Non-verbal behavior requested or suggested by the teacher. Seat work and small groups work are in this category.
S		
I		
L	13	<u>Demonstration</u> : Silence during periods when visual materials are being shown or when non-verbal demonstration is being conducted by the teacher or by a student.
E		
N	14	<u>Constructive Silence</u> : Silence during the classroom that is constructive such as "think time" or time given a student to respond to a question.
C		
E	141	<u>Non-Constructive Silence and Confusion</u> : Periods of confusion where observer cannot understand communication, other special classroom activities not covered in above category.

CIAS Variable Description

1. Little i/d - Teacher behaviors coded in categories 1, 2, and 3 were divided by teacher behaviors coded in categories 7, 8, and 9 to form a "pure" measure of indirect (pupil oriented/supportive focus) to direct (teacher oriented focus) teacher behavior.
2. Big I/D - Teacher behaviors coded in categories 1 through 5 were divided by teacher behaviors coded in categories 6 through 9 to form a more "gross" measure of indirect to direct teacher behavior that took into account questions and lecture.
3. Student Talk/Teacher Talk (ST TLK/TCH TLK) - The ratio between the amount of student verbal behavior and teacher verbal behavior.
4. Silence/Total (Sil/Tot) - The proportion of silence recorded in the classroom where silence was constituted of categories 12, 13, 14, 141.
5. Lecture/Total (Lec/Tot) - The proportion of lecture recorded in the classroom; category 6 and 61 constituted lecture.
6. Indirect/Total (Ind/Tot) - The proportion of "pure" indirect teacher behavior recorded (categories 1, 2, 3)
7. Direct/Total (Dir/Tot) - The proportion of "pure" direct teacher behavior recorded (categories 7, 8, 9)
8. Teacher Talk/Total - The proportion of teacher verbal behavior recorded.
9. Student Questions/Student Responses (StQ/StR) - Ratio of student questions (category 11) to student responses (categories 10, 101).
10. Student Talk/Total - Proportion of student verbal behavior.